

We Claim:

1. A motion conversion means, said motion conversion means comprising:

(a) a driving member including a substantially cylindrical first portion, a guiding portion disposed outwardly from said substantially cylindrical first portion, a second portion disposed adjacent said first portion, and a cavity disposed within said second portion and concentrically with said first portion;

(b) a driven member including a substantially cylindrical cavity, a helical aperture for cooperating with said guiding portion of said driving member, and a mounting cavity abutting said substantially cylindrical cavity for enabling engagement and disengagement of said guiding portion with said helix aperture during installation; and

(c) said driven member adapted for rotary and axial motion about said driving member enabled by a rotation of said substantially cylindrical first portion being engaged within said substantially cylindrical cavity and further enabled by a movement of said guiding portion within said helix aperture.

2. The motion conversion means, according to claim 1, wherein said mounting cavity is disposed in a manner enabling a predetermined rotation of said driving member without disengaging said driven member.

3. The motion conversion means, according to claim 1, wherein said helix aperture includes a predetermined pitch enabling a predetermined vertical displacement of said driven member upon rotation of said driving member.

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4. The motion conversion means, according to claim 1, wherein said motion conversion means further includes a friction reducing means for minimizing friction between said helix aperture and said guiding portion, and between said substantially cylindrical cavity
10 and said substantially cylindrical first portion.

5. The motion conversion means, according to claim 4, wherein said friction reducing means is applied to one of said helix aperture and said guiding portion and further applied to one of
15 said substantially cylindrical cavity and substantially cylindrical first portion.

6. The motion conversion means, according to claim 4, wherein said driven member is manufactured from a material having a low
20 predetermined friction coefficient capable of withstanding forces generated during a motion of said driven member with said driving member.

7. A sealing arrangement adapted for sealing against a level
25 surface in a first position and against an angular surface in a

second position, said sealing arrangement rotatable between said first and said second position by a rotation enabling means at least partially coupled thereto, said sealing arrangement comprising:

5 (a) a mounting member having at least one cavity;

(b) at least one sealing member attached to said mounting member with at least one fastener engaging said at least one cavity; and

(c) a motion conversion means at least partially attached to
10 said mounting member for enabling a movement of said at least one sealing member in a first axial direction during a rotation thereof from said first position to said second position and enabling movement of said at least one sealing member in a second axial direction during the rotation thereof from said second position to
15 said first position, said second axial direction being substantially opposite said first axial direction.

8. The sealing arrangement, according to claim 7, wherein said at least one cavity of said mounting member is elongated in
20 said first and said second axial directions.

9. The sealing arrangement, according to claim 7, wherein said sealing arrangement further includes a second sealing member disposed adjacent said first sealing member.

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10. The sealing arrangement, according to claim 7, wherein
said sealing arrangement further includes a sealing pivot means at
least partially disposed within said sealing arrangement, said
sealing pivot means is one of a pivot and a pivot cavity disposed
5 within said mounting member of said sealing arrangement.

11. The sealing arrangement, according to claim 10, wherein
said pivot cavity is elongated in a direction perpendicular to said
first axial and said second axial directions.

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12. The sealing arrangement, according to claim 10, wherein
said sealing pivot means is manufactured from a material having a
low predetermined coefficient of friction selected from the group
consisting of Teflon, Delrin, Nylon, Nylotron, high molecular
15 weight plastic, oil impregnated bronze, oil impregnated iron, and
brass.

13. A door system disposed within a portal aperture of a
transit vehicle having a side wall member with outer and inner
20 surfaces, a ceiling portion adjacent said side wall member and said
aperture, and a floor portion disposed adjacent said portal
aperture and said side wall member, said floor portion having a
level outer edge and a surface angularly disposed about each one of
said side wall member and a horizontal plane, said door system
25 comprising:

(a) a door drive means disposed adjacent said portal aperture, said door drive means having a base attached to one of said ceiling portion and said inner surface of said side wall member, a prime mover selected from a group consisting of electrical, mechanical, pneumatic, and hydraulic prime movers, and at least one drive linkage connected to said prime mover at one end thereof;

(b) at least one door rotation enabling means disposed vertically within said transit vehicle adjacent said inner surface of said side wall member, said at least one door rotation enabling means having a first pivot connection with said at least one drive linkage, an upper arm with an upper pivot means, and a lower arm with a lower pivot means;

(c) at least one door for at least partially covering and uncovering said portal aperture, said at least one door including a door body member with a leading edge and a bottom edge, an upper pivot for coupling with said upper pivot means, a lower pivot for coupling with said lower pivot means, and a guide bracket adapted for linear movement during a rotation of said at least one door, said at least one door movable between a first position disposed planar with said side wall member and a second position disposed perpendicularly to said side wall member upon rotation of said at least one door rotation enabling means, said at least one door being disposed above said floor portion in said second position; and

(d) a sealing arrangement at least partially attached to said at least one door for sealing said bottom edge thereof against said level outer edge of said floor portion in said first position and cooperating with an angular surface of said floor portion in said second position, said sealing arrangement including:

(i) a mounting member having a body portion with at least one cavity;

(ii) at least one sealing member attached to said mounting member with at least one fastener engaging said at least one cavity; and

(iii) a motion conversion means at least partially attached to said mounting member for enabling movement of said at least one sealing member in first vertical direction during rotation thereof from said first position to said second position and enabling movement of said at least one sealing member in a second vertical direction during rotation thereof from said second position to said first position, said second vertical direction being substantially opposite said first vertical direction.

14. The door system, according to claim 15, wherein said at least one door rotation enabling means further includes a second pivot connection with said floor portion.

15. The door system, according to claim 13, wherein said at least one cavity of said mounting member is elongated in said first and said second vertical directions for providing an adjustment of said at least one sealing member within said portal aperture, said
5 at least one cavity further enabling a predetermined clearance of said at least one sealing member with said floor portion in said first and said second positions.

16. The door system, according to claim 13, wherein said
10 sealing arrangement further includes a retainer for retaining said at least one sealing member, said retainer attached to said mounting member intermediate said mounting member and said at least one sealing member.

15 17. The door system, according to claim 13, wherein said at least one sealing member is one of a brush and a rubber portion.

18. The door system, according to claim 13, wherein said motion conversion means includes a driving member being one of
20 integral with said lower pivot means and rigidly coupled to said lower pivot by one of welding, brazing, adhesive bonding, and mechanical fastening, said driving member having a substantially cylindrical first portion, a guiding portion disposed outwardly from said substantially cylindrical first portion, and a second
25 portion with a cavity disposed concentrically with said first

portion, said motion conversion means further including a driven member attached to said mounting member, said driven member having a substantially cylindrical cavity for cooperating with said substantially cylindrical first portion, a helical aperture of a first predetermined pitch for cooperating with said guiding portion of said driving member, and a mounting cavity abutting said substantially cylindrical cavity for enabling an engagement and a disengagement of said guiding portion with said helix aperture during installation, said driven member adapted for a rotary and a vertical motion about said driving member enabled by a rotation of said substantially cylindrical first portion being engaged within said substantially cylindrical cavity and further enabled by a movement of said guiding portion within said helix aperture.

15 19. The door system, according to claim 18, wherein said first predetermined pitch enables cooperation of said sealing arrangement with said floor portion during movement of said at least one door between said first and said second positions.

20 20. The door system, according to claim 18, wherein said driving member includes a threaded first portion of a second predetermined pitch and a second portion with a cavity disposed concentrically with said threaded first portion, said motion conversion means further including a driven member attached to said mounting member, said driven member having a threaded cavity of a

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third predetermined pitch, said third predetermined pitch is substantially equal to said second predetermined pitch.

21. The door system, according to claim 13, wherein said door
5 system further includes a sealing pivot means at least partially disposed within said sealing arrangement, said sealing pivot means is one of a pivot and a pivot cavity disposed within said mounting member of said sealing arrangement.

10 22. The door system, according to claim 21, wherein said sealing pivot means includes a pivot member attached to said leading edge of said at least one door, said pivot member having a pivot cavity elongated in a horizontal direction.

15 23. The door system, according to claim 13, wherein said door system further includes an inner cover rigidly attached to one of said at least one door and said lower arm.

20 24. The door system, according to claim 13, wherein said door system further includes an outer cover rigidly attached to said at least one door.

25. The door system, according to claim 13, wherein said door system further includes a safety member attached to one of said

inner cover, said at least one door, and said driven member for accommodating said floor portion in said second position.

26. The door system, according to claim 25, wherein said
5 safety member is sensitized for providing a signal to a control system of said transit vehicle upon encountering a passenger obstruction preventing the movement of said at least one door into said first position.